

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 October 2005 (06.10.2005)

PCT

(10) International Publication Number
WO 2005/092867 A2

(51) International Patent Classification⁷: **C07D 239/00**

(21) International Application Number:
PCT/GB2005/001099

(22) International Filing Date: 23 March 2005 (23.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0406757.5 26 March 2004 (26.03.2004) GB

(71) Applicant (for all designated States except US): **AVECIA PHARMACEUTICALS LIMITED** [GB/GB]; PO Box 42, Hexagon Tower, Blackley, Manchester M9 8ZS (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MOODY, David, John** [GB/GB]; Wellbrae House, Wellbrae, Falkland, Fife KY15 7AY (GB). **WIFFEN, Jonathan, William** [GB/GB]; 62 Springhill Manor, Magheralin, Craigavon, County Down BT67 0OB (GB).

(74) Agents: **GAIRNS, Raymond, Stevenson et al.**; Avecia Pharmaceuticals limited, Intellectual Property Group, PO Box 42, Hexagon Tower, Blackley, Manchester M9 8ZS (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AF, AG, AI, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

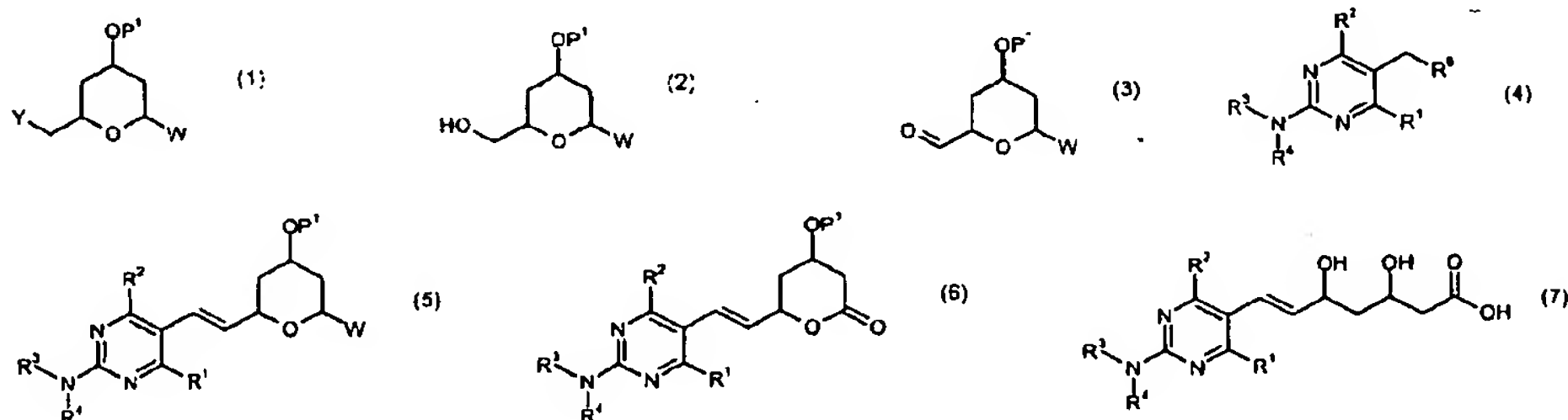
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: **PROCESS AND INTERMEDIATE COMPOUNDS USEFUL IN THE PREPARATION OF STATINS, PARTICULARLY ROSUVASTATIN**



(57) Abstract: There is provided a process for the preparation of a compound of formula (7): formula (7) wherein R¹ represents an alkyl group; R² represents an aryl group; R³ represents hydrogen, a protecting group or an alkyl group; and R⁴ represents hydrogen, a protecting group or a SO₂R⁵ group where R⁵ is an alkyl group, which comprises a) hydroxylating a compound of formula (1): formula (1) wherein Y represents a halo group; P¹ represents hydrogen or a protecting group, and W represents =O or -OP², in which P² represents hydrogen or a protecting group, to give a compound of formula (2); formula (2) b) oxidising the compound of formula (2) to give a compound of formula (3); formula (3) c) coupling the compound of formula (3) with a compound of formula (4): formula (4) wherein R³ represents a protecting group or an alkyl group; R⁴ represents a protecting group or a SO₂R⁵ group where R⁵ is an alkyl group; and R⁶ represents (PR⁷R⁸)⁺X⁻ or P(=O)R⁷R⁸ in which X is an anion and R⁷ and R⁸ each independently is an alkyl, aryl, alkoxy or aryloxy group, to give a compound of formula (5); formula (5) wherein R³ represents a protecting group or an alkyl group; and R⁴ represents a protecting group or a SO₂R⁵ group where R⁵ is an alkyl group, d) when W represents -OP², removing any P² protecting group and oxidising the compound of formula (5) to give a compound of formula (6): formula (6) and c) subjecting the compound of formula (5) when W represents =O, or compound of formula (6) to ring-opening, removal of any P¹ protecting groups, and optionally removing any additional protecting groups to give a compound of formula (7).

WO 2005/092867 A2



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.